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ABSTRACT

Discussed is the language impairment of children with infantile autism. The speech patterns of autistic children, including echolalia, pronomial reversal, silent language, and voice imitation, are described. The clinical picture of the autistic child is compared to that of children with such other disorders as deafness, retardation, and developmental aphasia. The idea of an organic etiology for autism is briefly considered, and other possible explanations for the language impairment are examined. A brief outline of verbal imitation training is presented, using prompts and the operant conditioning paradigm for shaping. (Author/CL)

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LANGUAGE IMPAIRMENT IN AUTISTIC CHILDREN

"All the autistic children I have seen have this one common and very real difficulty, language--some act as mute, some repeat budgerigar (parrot) fashion, some use odd words with no reference to the existing situation, some use only substantives (nouns)."

(Weston, 1968)

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ABSTRACT

The major purpose of this paper is to describe the language impairment which is characteristic of infantile autism by integrating the studies and theoretical viewpoints put forth in the literature up until this point. The speech patterns of autistic children are described, including echolalia, pronomial reversal, the idea of a silent language, and voice imitation. The clinical picture of the autistic child is compared to that of children with other disorders such as deafness, mental retardation, and developmental aphasia. The idea of an organic etiology for autism is briefly considered. Possible explanations for the language disability common to autistic children are offered. The brain's, the parents', and the IQ's possible influences are noted as are the theories of sensory input, output, and coordination derangement. A brief outline of verbal imitation training is presented, using prompts and the operant conditioning paradigm for shaping. Future research needs are delineated.

LANGUAGE IMPAIRMENT IN AUTISTIC CHILDREN

Since Kannar's (1943) description of infantile autism over thirty years ago, the study of this relatively rare syndrome has increased in both intensity and popularity. Despite the many investigators and theoretical orientations, however, it is generally agreed that the essential characteristics of autism include "a tendency to ritualistic and stereotyped forms of behavior, language impairment or complete absence of speech, motor mannerisms, and inappropriate responses to sensory stimuli." (Hermelin, p.3) Other aspects that Hermelin notes are the acute and illogical anxiety, the unrelatedness to people, the sustained resistence to any type of change, and an apparent unawareness of personal identity in many of the children. Of all the above-mentioned features of autistic children, however, the most frequently noted is the severe language disability. This aspect, then, is what the present paper will focus upon.

The importance of language impairment in the syndrome of early infantile autism may perhaps be perhaps be best emphasized by the recent finding that in approximately half the cases of autism, no speech was ever developed. (Rutter, 1966) Even in those cases where speech is not completely absent, the speech repertoire of the autistic child is still grossly inadequate and may be marked by odd developmental

patterns. The distinct developmental delays in speech often produce the clinical picture of the mute child. The problem here is that the autistic child is unable to respond adequately to any use of abstract speech. This is due to an inability on the part of the autistic child to integrate and relate remembered data meaningfully or, in Rimland's (1964) words: " . . . stimuli are apprehended but not comprehended." Unfortunately for the autistic child, abstracting ability is necessary before true formal speech development can occur. The furthest a child can progress without this ability is to the level of echolalic speech.

Of the autistic children who do speak, three out of every four show echolalia of either the immediate or the delayed type. The name echolalia is descriptive of this speech pattern in that it actually consists of the child echoing the things he hears. He may do this either immediately after the words have been spoken: for example, hearing "Look at the tree." and replying immediately afterwards "Look at the tree." or he may repeat things much later: for example, saying "Look at the tree." three days later when out on a walk. It is this delayed echolalia which can be deceptive to people when the words emerge occasionally in appropriate places, making it appear almost as though the child understood the words and could apply them correctly when, in fact, he is only echoing a phrase he had heard previously in a similar or identical setting.

Among speaking autistic children, in addition to the manifestation of echolalia, is the use of language in other

unusual ways. Often the association of ideas by these children is quite odd. Solid mental connections are sometimes made between a command and an action in a very inappropriate way which leaves doubt that the words were ever really understood. A case study in Rimland's book which illustrates this is that of a four-year-old autistic boy whose parents slapped him lightly on the hand in a nonverbal attempt to indicate that his response to "Close the door" was incorrect. Rather than learning this, however, the boy learned instead to slap his own hand every time he was told to close the door. The association had been made between the command "Close the door" and the action of spanking the hand.

Another habit which demonstrates the autistic child's failure to interpret what is said to him is the reversal of pronouns which often occurs in connection with echolalia. In the case of this speaking pattern, the child usually refers to himself as "you", "he", or "him" and to another person as "I" or "me". This illustrates the fact that a sentence or phrase can enter the child's hearing apparatus and be stored without being processed or analyzed so that it later emerges unchanged in that stimulus situation or one analogous to it. An example of this type of pronomial reversal may be seen when an autistic child is questioned: "Do you want some candy?" and he replies "Do you want some candy?" as an affirmative answer to the question. This sort of behavior is said to be indicative of not only a lack of interpretation of the data but also of a lack of self identity for the autistic child.

A few other interesting aspects of the speaking autistic child's speech should be noted here. There are a variety of unusual characteristics which occur in the vocalizations of autistic children. One of these is the actual speaking voice used. Some of the children speak only in a "special voice" which may be an imitation (usually a good one) of another person's voice or may be a whisper or a sort of "sing-song" voice. In other children, the speech may be flat and monotonous or stilted with an uneven and irregular coordination between breathing and speaking. The speed of acquisition of words also varies from child to child. In some children, a difficulty in pronunciation continues to manifest itself and each word is painstakedly acquired. In others, words may be acquired rapidly and pronounced very well after the first word is spoken. It is the latter of these two groups which gives evidence for the existence of a "silent language" within the child before he develops functional speech.

The idea of an internalized silent language brings us back to the competence-performance distinction which is elaborated upon by Kleffner (1973). While linguistic competence consists of one's total knowledge of a language, linguistic performance consists rather of the actual demonstration of comprehension and verbalization--in other words, the receptive and expressive use of language. The obvious problem here is in measuring each of these two levels of language understanding. Whereas performance can be measured directly and described precisely through observation, com-

petence, on the other hand, can only be inferred on the basis of performance. The rapid acquisition of words by some children once echolalia develops seems to point to some internalized language which could not be measured until echolalia began and the words were voiced or "performed". The idea of an inner vocabulary possessed all along would account for the proficiency in verbal imitation once echolalia develops. It is simply that only the receptive side of speech has been developed prior to echolalia so that the child's true range of words is not evident until he is able to develop an expressive side through imitation. Hartung (1970) particularly, supports this theory of the phenomenon of silent speech as he cites a case in his own experience where a boy's speech after echolalia emerged was quite clear and developed very rapidly. So it may well be, in fact, that the linguistic competence of an autistic child is relatively advanced in comparison to what is actually performed.

Characteristics Which Other Handicapped Children Share With Autistic Children

Various studies on early infantile autism (Rutter, 1967; Lotter, 1966; Brask, 1967) have revealed an incidence of autism of about four in every ten thousand children. This makes autism a more common disorder than blindness but less common than developmental aphasia, deafness, or mental subnormality. The patterns of speech development in each of these disorders share some similarities with those of infantile autism.

Keeler (1958) has been instrumental in furthering the study of the similarities of speech development between blind and autistic children. Some of his findings revealed that one primary similarity between the two was the lack of orientation to speakers which accompanied the absence of verbalizations in both autistic and blind children. If, however, these children were echolalic, Keeler discovered that both the autistic and the blind ones would orient their faces toward the voice acting as a stimulus. Other patterns of language development previously mentioned as being characteristic of autistic children are also manifested by blind children in Keeler's study. These include delayed echolalia; referring to oneself in the third person (pronomial reversal); and the repeating of apparently meaningless or inappropriate words and phrases. Several other psychologists (Des Lauriers, et. al., 1969; Rutter, 1966) have noted these similarities, but the specific nature of the possible relationship between the two disorders is still wide open for more discussion and study.

Interestingly enough, the clinical picture that the young autistic child presents is so similar to that of the young deaf child that he is often diagnosed as deaf before more obviously autistic characteristics have manifested themselves. Part of this clinical picture involves a failure to react to sounds. (Rutter, 1966) This lack of receptivity to noises extends even to loud, startling sounds and to a lack of reaction when the child's own name is called.

An additional category of persons who exhibit several

characteristics similar to those shown in autism is that of the mentally subnormal or retarded. As Churchill, Alpern, and De Myer (1971) state in their book, a high percentage of both mentally retarded and autistic children are often severely delayed in language development. The fact that poor language ability is known to characterize both these groups raises the question of whether autism is independent of IQ. This question will be dealt with more extensively in a later discussion of the possible causes of autistic speech impairment.

A final disorder which relates most directly to autistic language development is that of developmental aphasia. Hermelin and O'Conner (1970) in their book of experiments with autistic children talk about how the language disability characteristic of infantile autism can be likened to the disorder known as developmental aphasia. Rutter (1968) also used this comparison. Despite the many similarities between these two disorders, however, there are two particular incongruities cited by Rutter which make the connection somewhat less perfect. The first of these differences is the fact that in developmental aphasia, there is often a family history of slow speech while this is not true of autism. Also, evidence of an overt brain injury is rare in developmental aphasia but fairly common in autism. Despite these two difficulties, however, the comparison between the the two disorders still seems a somewhat accurate and potentially useful one.

Before leaving this discussion, it may be interesting

to note that the disorders compared to autism in the above are all more clearly organic in nature than is infantile autism, the nature of which is still unknown. The fact that it shares some characteristics with these disorders, however, means that the search for an organic basis for autism is not unrealistic. Fay (1970) makes a comment on this matter referring specifically to the echolalia aspect which goes as follows: "Thus, autistic-like echolalia is to be considered from the perspective of organic--rather than psychopathic etiology."

Possible Explanations For the Language Disability in Infantile Autism

> The more that is known about language acquisition, the more it appears that normal humans can and will develop language so long as the environment produces any occasion for them to do so. Serious deficiency in the acquisition of language can result only from serious and identifiable impairment and implies some form of defect in the capacity to receive or benefit from language input. (Kleffner, 1973, p. 8)

In the last few years, there have been numerous theories on the origins of autism and also on the causes of the language impairment which is most frequently associated with autism. Of these theories, the explanations dealing with some sort of brain injury or disorder appear to be best supported in literature.

In Rutter's paper (1968), several points were cited which would support the idea that the "main sensory-perceptual defect leading to autism may be a relative inability to comprehend verbal communication." (Morrison et. al.,

p. 510) Continuing this line of thought, Rutter found evidence of brain injury or damage in about half the autistic children he studied and he noted also that sometimes the onset of autism and hence, language impairment, followed the occurrence of encephalitis or some other brain disorder occurring in early childhood. Because he found brain injuries in so many of the children, Rutter hypothesized that similar brain injuries might actually be present in the half without definite signs of injury but that these fail to be detected because our research tools are presently too inadequate.

Another, more specific theory on the source of the language disorder of autism is that there is some dysfunction on the part of the brain stem that may be responsible. Rimland selects this particular site because this, he says, is the place in the brain where the incoming stimuli interact with previously stored experiences to supply meaning and to arouse attention to particular sources of information. This would explain pronomial reversal by saying that phrases are stored in the memory (but not analyzed) and then can be evoked only by specifically associated stimuli and then never in any useful combination with other ideas.

There are many other less specific theories about the causes of infantile autism's language disorder. One of these is the classic idea of some type of emotional malfunction between parent and child. For quite awhile, parents of autistic children felt that they were somehow at fault and blamed themselves for their children's lack of speech.

In more recent years, however, various investigators (Rutter, 1966; Hermelin et. al., 1970; Fraiburg, 1971) have begun to note the varied personalities of the parents and the many different ways of bringing up their children and so have begun to feel that the disorder should not be blamed upon the parents.

An explanation which is somewhat associated with the previous one is Escalona's comment that "infantile autism is caused by the absence of those vital experiences in early childhood which we regard as the necessary conditions for ego synthesis." (Des Lauriers, 1969, p. 39) Also in the realm of experiences, Rutter hypothesizes that "the child's difficulty in social relationships may not be the primary handicap but it certainly interferes with his use of speech. The two handicaps are closely related." (Rutter, 1968, p. 69) Obviously, the absence of language creates a marked disadvantage for the child in initiating and continuing meaningful early interpersonal experiences. And particularly when the child appears deaf and dumb, people tend to accomodate to his lack of speech by disregarding him or speaking about him as if he were not there. Especially in this area, it is very difficult to distinguish between the causes and effects of language disorders.

One topic which has been studied fairly extensively throughout the years is that of IQ's relationship to autistic language development. At different times, it has been said IQ is independent of autism, that autistic children have higher than average IQ's, and that autistic children have

IQ's that are below normal. The latter viewpoint is the view that appears to be best documented by recent literature. The interdependence of IQ and language development has been demonstrated in a study by Rutter where he found that out of a group of twenty non-speaking autistic children with IQ's below 55, only one or 5% acquired any speech at all. In contrast, of a group of nine children with IQ's above 55, five or 56% eventually developed some functional language. In a related study, Hermelin found that the average IQ of an autistic child is below that of a normal child. One problem with this argument, however, is that traditional intelligence tests tend to measure certain verbal skills which an autistic child may not have developed despite the fact that he may have a great deal of native intelligence.

Three final ideas on the origins of autistic language impairment are those which were put forward by Anthony in 1962. He states that three possible theories for the lack of speech are the derangement of sensory input, interference with central coordinating and integrating mechanisms, and the disorder of output. The first of these, derangement of input, can be furthur explained by saying that the child has a sort of perceptual handicap which does not allow him to appreciate sensory input. Secondly, interference with central coordinating and integrating mechanisms means that the child is able to see and hear yet he fails to make use of this input, that is, he is unable to analyze and integrate it. Thirdly, Anthony says there may be a disorder in output in that the output remains unchanged from the input (echo-

lalia).

Though it may be some time before a true and complete explanation is found for autism and the language impairment which generally accompanies this syndrome, the above hypotheses are still exceedingly valuable in furthuring our understanding of the possible origins of this speech disability. It may well be, in fact, that a combination of the above factors is responsible or even that the true explanation has still not been touched upon by studies up until now.

A Brief Outline Of Verbal Imitation Training

One particular idea stressed by many psychologists in their study of autistic children is the importance of establishing functional speech in non-speaking autistic children. Verbal imitation training, which involves the building of a discrimination whereby the behavior of one person provides the stimulus for similar behavior in another person, has been used as a method for increasing the child's verbal behavior. A short sketch of the steps involved in the verbal imitation method can be found in Hartung's (1970) review article on procedures used to increase autistic children's vocal behavior. His outline is as follows:

Establishing Control Over Vocal Response

1. Rewarding all vocalizations indiscriminantly
2. Rewarding only the vocalizations that come within a specified response period after the adult's emitted sound
3. Progressively shortening response period

4. Rewarding only the responses emitted within the response period and resembling the adult's sound (physical prompting may be required)
5. Rewarding responses made with decreased physical prompting
6. Rewarding only close imitations
7. New word presented after child reliably and immediately imitated first word
8. Two words presented alternately

It may be seen that the probable and desired outcome of this shaping procedure will be development of imitation whereby the child readily attempts to repeat all the words presented to him.

Other auxiliary procedures which may need to be employed prior to or during the verbal imitation training include the increase of attention span and eye to eye contact, and secondly the extinction of self-destructive behavior. The first of these can usually be accomplished by holding food in front of the therapist's face to attract and hold the child's attention and then rewarding him with a tidbit. The latter disruptive behavior may be extinguished sometimes by ignoring it (if it is not too injurious to the child) and at other times by hitting the child or punishing him in some way.

Two essential things must be remembered in the utilization of the verbal imitation procedure. First of all, it requires patience. Months and months of repetition and effort may be required before desirable behaviors are ac-

quired as habits. Secondly, it must be remembered that the level of verbal instruction should, at first, be kept at a minimum. The non-communicating child who neither speaks nor appears to understand the complete meaning of language and, instead, needs physical materials and physical prompting. Whether language is being learned through this procedure or whether it is merely the functional use of already existing language being learned is difficult to say. It is certainly true, however, that much-needed social skills are being learned here in addition to whatever verbal learning is going on.

Future Indications and Concluding Remarks

It is important to recall that educational and social progress is said to approach normality in only 15% of the cases of autism and it has been estimated that between 30 and 50% of autistic children remain mute. Obviously, there is still a need for much work to be done not only in the realm of increasing verbal behavior but also in training the child to function in a social environment, helping him become more aware of himself and his environment, and increasing his understanding.

Future study is still needed in many areas associated with autism, particularly in searching for an explanation for the speech impairment, in clarifying the relationship between autism and other disorders, and in evaluating what treatments and therapies are already being done. It is especially important to remember that although many autis-

tic children will remain handicapped in their speech, advantage should be taken of the child's abilities in other areas (e.g. mechanical abilities). With better treatment and better schooling, improvement is always possible.

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